LEARN ABOUT THE CO_2 BUDGET Climate Change fifth grade curriculum-based activity

ACTIVITY 2 ***People are adding more carbon than the planet can subtract.***

Use different senses and skills to learn about the 2008 global carbon budget i.e. $C0_2$ sources and sinks.

Florida State Standards
SC.5.L.14.2 SC.5.L.15.1 SS.5.C.2.4 SS.5.C.2.5 LA.5.5.2.2

OBJECTIVES Students will be able to

1) Use simple math to re-create the 2008 global carbon budget.
2) Explain where CO2 is trapped (carbon sink) and where CO2 is released (carbon source).
3) ID the three ways that the earth's temperature increases.
4) Talk about the importance of the industrial revolution and the imbalance of CO2.

MATERIALS

1) Marbles to use as an auditory tool while demonstrating the amounts of CO2 in the budget (1 marble = 100 million). Two container s to represent carbon sink and carbon source. Different colored marbles for source and sink of CO2.
2) Props / diagrams / field observations to show where CO2 is trapped (oceans, permafrost, trees, photosynthesis, plankton, soil biota).
3) Props to show where CO2 is released (deforestation, melting of permafrost, human activities).
4) Props / diagrams to show the energy cycle of light in the atmosphere.
5) White board, markers, paper, calculators.
6) Map of earth.

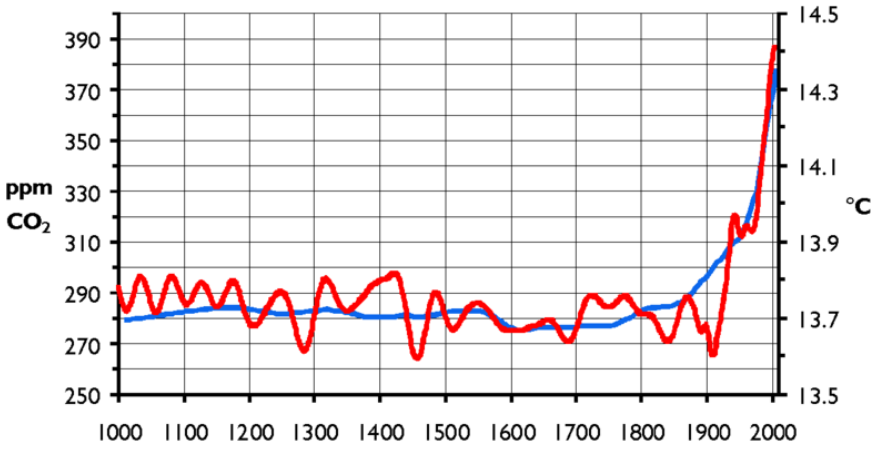
PROCEEDURES – aim to show the carbon budget as more than a mathematical fact.

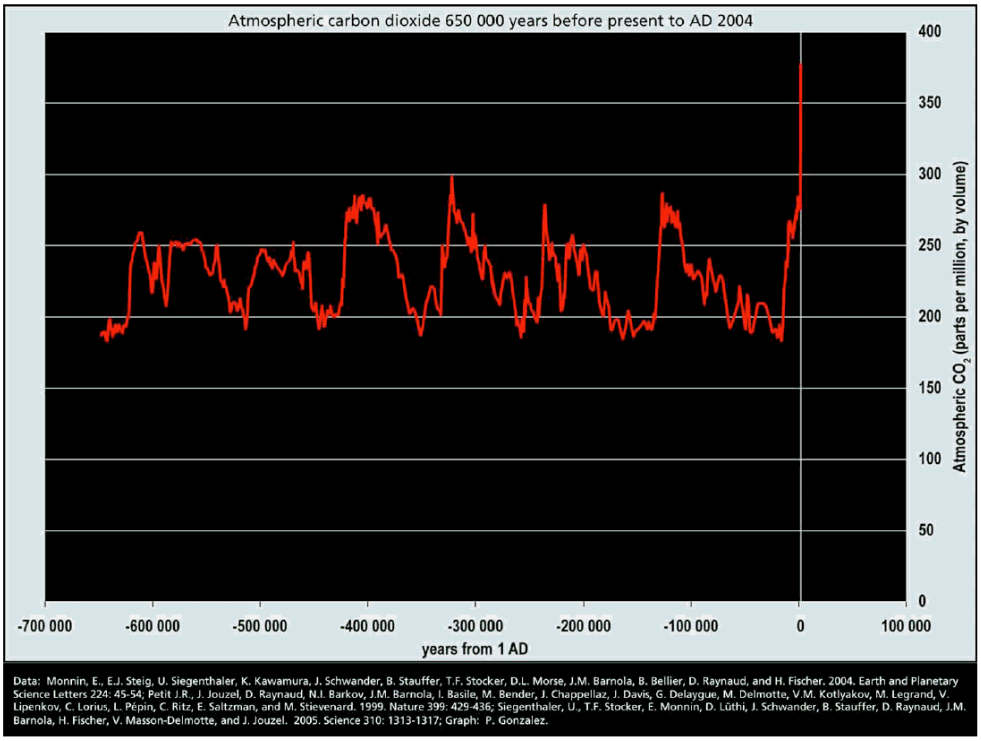
1) Have kids think about how they could quantify / measure nature.
2) Talk about how science measures / quantity nature.
3) Use role play to show that CO2 is stored in trees – produced by volcanoes etc
4) Refer to science data from 2008 Global Carbon budget.
   IPCC report (i) 10 billion tones of CO2 added to atmosphere by human activities and deforestation a year.
   (ii) 6-7 billion tones of CO2 removed by planet naturally a year.
   (iii) "what remains , 4 billion tons a year of CO2 accumulates".
5) Use ways to reveal what those huge numbers / weight might mean.
6) Use sound of marbles to reveal the imbalance of CO2 sinks in and CO2 sources.
7) Compare the piles of marbles to estimate the imbalance of CO2 sinks vs. CO2 sources.
8) Ask about carbon footprints – share websites. Some car GPS units estimate carbon emissions to help us become aware of our carbon footprint.

ASK THE FOLLOWING KINDS OF QUESTIONS

How can you, your school, or family reduce its carbon footprint?

Talk about the CO_2 graph for the past 700,000 years (aka the hockey stick graph)





http://www.globalcarbonproject.org/carbonbudget/

http://www.epa.gov/climatechange/kids/resources/tips.html